WHITE PAPER

Modeling the Enterprise Architecture

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There are three key initiatives that are driving the current trend toward implementing Enterprise Architectures. They are:

- The need for business agility
- The need to align business and IT
- The need to adhere to and rapidly respond to regulatory compliance

And through them all is metadata. Metadata is the information that is used to align business and IT and helps develop the roadmap for change. For organizations to be the best, they need to manage their metadata in an integrated, standardized and effective way.

THE AGILE BUSINESS

In today's environment businesses need to be dynamic, able to react to changes in regulations, technology, competitive and economic landscapes. Businesses need to be proactive in new interpretations of business analytics results. In response to these needs, organizations are adopting an enterprise architecture solution.

Visualization of the current, "as-is" architecture, and the design of the roadmap needed to achieve the future desired, "to-be", state is needed to implement true business agility.

BUSINESS AND IT ALIGNMENT

Business and IT alignment streamlines communication and allows for successful management of the migration from the "as-is" systems to the "to-be" systems that support business strategy and goals. Ultimately, the task is to develop new projects that meet business goals without causing disruption to current business continuity. By using PowerDesigner's integrated models to define all aspects of the enterprise architecture with comprehensive impact analysis and traceability tools, users are sure of the project cost and reduce the risk associated with each change on the road to the future (to-be) state.

MEETING REGULATORY COMPLIANCE

Confidence is the number one issue when it comes to regulatory compliance. How confident are you in your reporting? How confident are you in your compliance to the standards? How confident are you that the entire organization is following the same standards and practices?

Confidence is achieved by having the right information available at the right time.

METADATA: IMPLEMENTING AN ENTERPRISE ARCHITECTURE

The first step to creating an enterprise architecture is capturing metadata. The metadata can be information about the business, information about information, information about applications, or information about systems. Capturing metadata involves documenting accurate definitions and descriptions of the elements that make up the business, information and technology views. A key success factor is the ease of use and availability of the metadata capture tools for all roles involved. Standardization on one set of modeling tools and techniques greatly improves the consistency of the metadata captured and making tools available to all roles that will capture or add value (documentation) to metadata is critical.

The next step is managing metadata dependencies, which is a true value of enterprise architecture. The goal is to not merely capture and categorize information, but to understand how it all relates. During this step, integration of modeling techniques to a common metamodel becomes essential. Integrating the metadata needed for the repository is the same as integrating data for a data warehouse or business intelligence system. Models are the OLTP (transactional) systems and the repository is the OLAP (analytical) system. The key is in the transformation of each piece of metadata into a meaningful intersection. These 'keys' are used to perform essential analytics such as change management, impact analysis, cost and risk assessments, gap analysis between "to-be" and "as-is" architectures, etc. A key success factor is in how integrated the modeling tools can be to the repository, and how much of the dependency tracking can be automated vs. performed manually.

The final step is to integrate the metadata and its dependencies. With an integrated environment for enterprise architecture, organizations can determine how business goals relate to implemented systems, how business rules affect the flow of information, and how technology changes impact the top line or bottom line. A key success factor is capturing and maintaining metadata in a timely, natural and accurate way; otherwise, this valuable knowledge base will age and become suspect.

Organically capturing the metadata dependencies in an integrated environment will ensure the enterprise architecture project develops a knowledge base in a timely, accurate, and reliable, way. The most suitable user interface for this natural capture of metadata is models. There are many different types of models to support the views of an organization; all are easy to use, easy to understand, and for the most part, already first-class citizens in the organization's daily lives. Due to the diversity of views that must be supported, there is no single model that will solve the needs of every participant in an enterprise architecture.

THE KEY ROLE OF THE REPOSITORY

Since enterprise architecture spans multiple disciplines and involves multiple perspectives, many different types of models are needed to complete the entire picture. Because of this diversity, a model-driven approach must support both non-graphical and graphical modeling paradigms. Typically, non-graphical models are used to capture business information, such as goals, strategies, risk and requirements. Graphical models capture business processes, data flows, an application's structure and behavior, and the information architecture from both structured and unstructured data sources.

However, simply having an integrated modeling toolset that can capture and maintain multiple separate and distinct models with their related dependencies is not enough; this metadata must be managed with a non-proprietary, robust and integrated repository—resulting in an integrated modeling environment.

The repository should provide three essential services: centralization, security, and consistency.

- *Centralization* allows all users to work together harmoniously, thereby maximizing efficiency while resolving conflict.
- *Security* ensures that only those with the right "credentials" have the ability to access potentially sensitive information, to make changes to specified parts, and to administer a project or domain.
- *Consistency* ensures control over the ability to share, re-use, and resolve dependencies with metadata across the enterprise architecture.

Empowering each user with an integrated modeling environment allows them to not only model their view, but also document where their view intersects with others. At the same time, it allows those with different expertise to model different views, and ensures a greater level of consistency, communication and collaboration—key attributes of a successful enterprise architecture.

MAPPING THE IMPACT OF CHANGES

Modeling the enterprise architecture provides a rich knowledge base for the organization. The value is realized when users employ this information to benefit the enterprise. Once the dependencies between the business, information and technology views have been documented, this intelligence is shared through reports. Enterprise architecture reports provide content similar to that of other information system reports—they help aggregate or isolate information relevant to a given analysis or decision.

Documenting relationships between information sets and cataloguing the contents of systems is useful, but establishing the interconnectedness of information enables impact analysis. Using the models and the repository, it is possible to map the upstream and downstream impact of a proposed change, whether the change is in business requirements, regulations or technology. Impact analysis allows organizations to be more predictable, accurate, and reliable in estimating the overall cost and time associated with a specific change, thereby providing superior decision support for the organization's leadership.

ADDING STRUCTURE VIA FRAMEWORKS AND STANDARDS

Frameworks and standards give the enterprise architecture structure to ensure that all participants and views are properly captured and presented. Frameworks like the Zachman Framework, The Open Group Architecture Framework (TOGAF), or the Department of Defense Architecture Framework (DoDAF) all serve to define the deliverables of the architecture, the appropriate scope of the dependencies between the deliverables, and impose process on enterprise architecture. Standards come in the form of regulatory compliance and internal organization governance. Regulatory compliance, such as BASEL II or Sarbanes-Oxley, can affect deliverables, how the business is modeled, what metadata must be captured, and how the system development lifecycle is managed. Internal standards are the extensions or modifications made to enhance or streamline a set of regulatory standards or industry frameworks. Internal standards can also consist of homegrown frameworks or rules of governance developed within the organization.

In a model-driven approach to enterprise architecture, the integrated modeling environment can be customized to apply rules and standards during the information capture process. Measuring input to the enterprise architecture against the standard or framework as it is gathered, managed, and maintained helps ensure consistency, clarity, and accuracy across all enterprise architecture views.

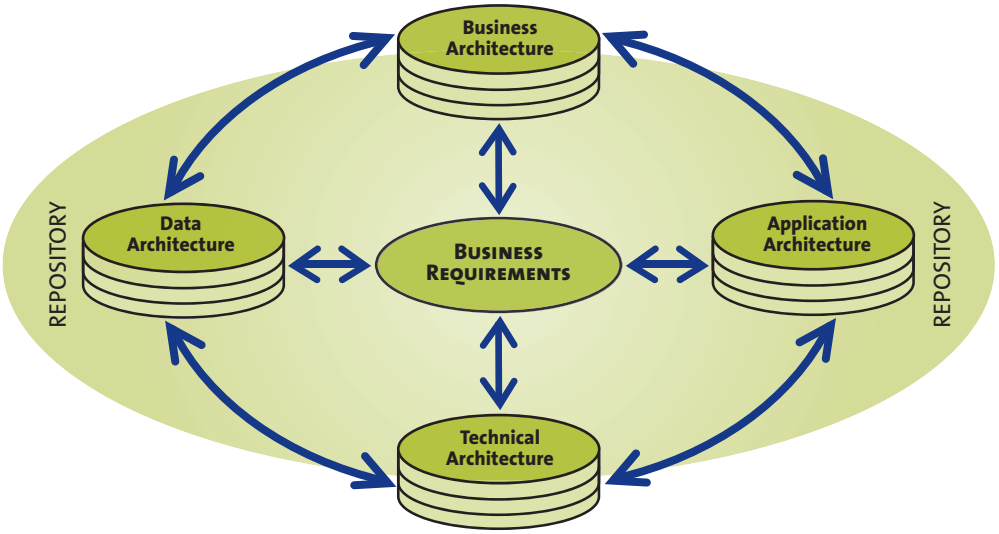
MODELING THE ENTERPRISE WITH POWERDESIGNER

PowerDesigner is an enterprise modeling and design solution that assists organizations in implementing effective enterprise architecture strategies. PowerDesigner integrates multiple industry standard models together within a robust metadata repository to define and describe all aspects of the business and IT infrastructures to support alignment, business agility,and regulatory compliance with metadata managment.

PowerDesigner empowers the implementation of an Enterprise Architecture by:

- Providing an integrated modeling and design environment that combines multiple industry standard techniques
- Allowing users to illustrate the business, information and technology views while providing rich round-trip engineering capabilities
- Working with all leading development and infrastructure environments
- Enabling full impact analysis and reporting capabilities with an enterprise repository
- Ensuring a fit into any organization with rich customization and extension capabilities
- Enforcing the specific standards and practices adopted by each organization

PowerDesigner is also unique as it has been designed to fit the organization versus having the organization fit the tool. This includes the ability to add any meta-tag (extended attribute) to any artifact, define new artifacts and classifications of metadata (stereotypes), and enhance the user interface to maximize the user experience. Besides just extending the environment, with PowerDesigner, organizations can build in enforcement of a rule or standard ("custom check") and leverage additional time-saving transformations to provide fast, predictable and repeatable design and deployment level generations. These abilities are a result of PowerDesigner's unmatched customization and enhancement features that help organizations deliver flexibility, automation, and agility between their business and information technology organizations.



INTEGRATED ENVIRONMENT

PowerDesigner's unique Link and Synch technology is where the 'rubber meets the road' bringing an integrated environment to a model driven approach for enterprise architecture. PowerDesigner's users are able to automatically track all dependencies through the generation function between the three views and their corresponding model representation(s). In addition, dependencies that cannot be automatically derived are easily added in one or many different ways – through the requirements matrix, the mapping editor, and the extended dependency (a user-specified traceability link). By combining this uniquely innovative and proven Link and Synch technology with PowerDesigner's Enterprise Repository, a centralized management environment is achieved which provides consistent metadata across the business, information, and technology views in the enterprise architecture. This 360° enterprise view provides easy development of multi-model documents and list reports while facilitating the industry leading cross-model impact analysis capabilities.

Following the principles of a model-driven approach will help organizations define an enterprise architecture. Using an integrated modeling and design environment that combines multiple industry-standard techniques, modeling allows users to illustrate business, information and technology views while providing rich round-trip engineering capabilities.

Modeling does much more than simply extend the environment; it enables organizations to ensure compliance with a rule or standard ("custom check") and leverage additional time-saving transformations to provide fast, predictable and repeatable design- and deployment-level generations. Models that are customizable offer organizations improved flexibility, automation and agility, and ensure that their IT organization provides maximum support to business functions.

MODELING AND METADATA MANAGEMENT—SHORTENING TIME-TO-VALUE

The key to creating a successful enterprise architecture is clear, accurate and integrated metadata, which is achieved through intuitive metadata capture, management and integration. Those processes are facilitated by using a model, which constitutes a comprehensive, easy to use, customizable, natural interface. Using an integrated modeling environment like PowerDesigner, in a multi-disciplined workforce ensures the natural capture of metadata through everyday analysis and design work. Using PowerDesigner's model-driven approach, will make it easier for business and IT organizations to adopt an enterprise architecture by shortening the time required for organizations to develop a knowledge base.

PowerDesigner is an enterprise modeling and design solution that assists organizations in implementing effective enterprise architecture strategies. PowerDesigner integrates multiple industry standard models together within a robust metadata repository to define and describe all aspects of the business and IT infrastructures to support business agility, regulatory compliance and metadata management.

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